IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	
	)	
Von DEYN et al.	)	Group Art: 1626
	)	
Serial No. Continuation of 09/091,300	)	Examiner Gerstl
Filed: June 16, 1998	)	
Issue Fee Paid: December 12, 2000	)	

For: 3-(HETEROCYCLYL-SUBSTITUTED BENZOYL DERIVATIVES

PRELIMINARY AMENDMENT

Hon. Commissioner of Patents and Trademarks
Washington, D.C. 20231

Sir:

Prior to examination of this continuation application, kindly amend the above-identified application as follows:

IN THE CLAIMS

Please cancel claim 24 and amend the claims as shown on the attached sheets.

REMARKS

The claims in the case are claims 1-23. Claims 1-23 were not prosecuted in the parent application. The claims have been amended to eliminate multiple dependency. No new matter has been added.

Entry of the above amendment is respectfully solicited.

Respectfully submitted,

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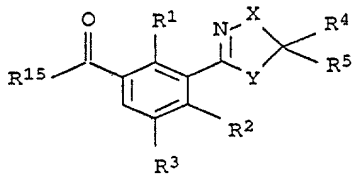
1. A 3-heterocyclyl-substituted benzoyl derivative of the formula I



I

where the variables have the following meanings:

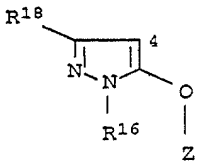
R^1, R^2 are hydrogen, nitro, halogen, cyano, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_1-C_6-alkoxy, C_1-C_6-haloalkoxy, C_1-C_6-alkylthio, C_1-C_6-haloalkylthio, C_1-C_6-alkylsulfinyl, C_1-C_6-haloalkylsulfinyl, C_1-C_6-alkylsulfonyl or C_1-C_6-haloalkylsulfonyl;

R^3 is hydrogen, halogen or C_1-C_6-alkyl;

R^4, R^5 are hydrogen, halogen, cyano, nitro, C_1-C_4-alkyl, C_1-C_4-alkoxy-C_1-C_4-alkyl, di(C_1-C_4-alkoxy)-C_1-C_4-alkyl, di(C_1-C_4-alkyl)-amino-C_1-C_4-alkyl, [2,2-di(C_1-C_4-alkyl)-1-hydrazino]-C_1-C_4-alkyl, C_1-C_6-alkyliminooxy-C_1-C_4-alkyl, C_1-C_4-alkoxycarbonyl-C_1-C_4-alkyl, C_1-C_4-alkylthio-C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_1-C_4-cyanoalkyl, C_3-C_8-cycloalkyl, C_1-C_4-alkoxy, C_1-C_4-alkoxy-C_2-C_4-alkoxy, C_1-C_4-haloalkoxy, hydroxyl, C_1-C_4-alkylcarbonyloxy, C_1-C_4-alkylthio, C_1-C_4-haloalkylthio, di(C_1-C_4-alkyl)amino, COR^6, phenyl or benzyl, it being possible for the two last-mentioned substituents to be fully or partially halogenated and/or to have attached to them one to three of the following groups: nitro, cyano, C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_1-C_4-alkoxy or C_1-C_4-haloalkoxy;

or

R^4 and R^5	together form a C_2-C_6-alkanediyl chain which can be mono- to tetrasubstituted by C_1-C_4-alkyl and/or which can be interrupted by oxygen or by a nitrogen which is unsubstituted or substituted by C_1-C_4-alkyl;
or		
R^4 and R^5	together with the corresponding carbon form a carbonyl or thiocarbonyl group;
R^6	is hydrogen, C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_1-C_4-alkoxy, C_1-C_4-alkoxy-C_2-C_4-alkoxy, C_1-C_4-haloalkoxy, C_3-C_6-alkenyloxy, C_3-C_6-alkynyloxy or NR^7R^8;
R^7	is hydrogen or C_1-C_4-alkyl;
R^8	is C_1-C_4-alkyl;
X	is O, S, NR^9, CO or $CR^{10}R^{11}$;
Y	is O, S, NR^{12}, CO or $CR^{13}R^{14}$;
R^9, R^{12}	are hydrogen or C_1-C_4-alkyl;
R^{10}, R^{11}, R^{13}, R^{14}	are hydrogen, C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_1-C_4-alkoxycarbonyl, C_1-C_4-haloalkoxycarbonyl or $CONR^7R^8$;
or		
R^4 and R^9	or R^4 and R^{10} or R^5 and R^{12} or R^5 and R^{13} together form a C_2-C_6-alkanediyl chain which can be mono- to tetrasubstituted by C_1-C_4-alkyl and/or interrupted by oxygen or by a nitrogen which is unsubstituted or substituted by C_1-C_4-alkyl;
R^{15}	is a pyrazole of the formula II which is linked in the 4-position



II

where

R^{16} is C_1-C_6-alkyl;

Z is H or SO_2R^{17};

R^{17} is C_1-C_4-alkyl, C_1-C_4-haloalkyl, phenyl or phenyl which is partially or fully halogenated and/or has attached to it one to three of the following groups: nitro, cyano, C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_1-C_4-alkoxy or C_1-C_4-haloalkoxy;

R^{18} is hydrogen or C_1-C_6-alkyl;

where X and Y are not simultaneously sulfur;

with the exception of
4-[2-chloro-3-(4,5-dihydroisoxazol-3-yl)-4-methylsulfonyl-benzoyl]-1-ethyl-5-hydroxy-1H-pyrazole,
4-[2-chloro-3-(4,5-dihydroisoxazol-3-yl)-4-methylsulfonyl-benzoyl]-1,3-dimethyl-5-hydroxy-1H-pyrazole,
4-[2-chloro-3-(5-cyano-4,5-dihydroisoxazol-3-yl)-4-methyl-sulfonylbenzoyl]-1,3-dimethyl-5-hydroxy-1H-pyrazole,
4-[2-chloro-3-(4,5-dihydrothiazol-2-yl)-4-methylsulfonyl-benzoyl]-1,3-dimethyl-5-hydroxy-1H-pyrazole and
4-[2-chloro-3-(thiazoline-4,5-dion-2-yl)-4-methylsulfonyl-benzoyl]-1,3-dimethyl-5-hydroxy-1H-pyrazole;

or an agriculturally useful salt thereof.

2. A 3-heterocyclyl-substituted benzoyl derivative of the formula I where the variables have the following meanings:

R^1, R^2 are hydrogen, nitro, halogen, cyano, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_1-C_6-alkoxy, C_1-C_6-haloalkoxy, C_1-C_6-alkylthio, C_1-C_6-haloalkylthio,

C_1-C_6-alkylsulfinyl, C_1-C_6-haloalkylsulfinyl, C_1-C_6-alkylsulfonyl or C_1-C_6-haloalkylsulfonyl;

R^3 is hydrogen, halogen or C_1-C_6-alkyl;

R^4, R^5 are hydrogen, halogen, cyano, nitro, C_1-C_4-alkyl, C_1-C_4-alkoxy-C_1-C_4-alkyl, di(C_1-C_4-alkoxy)-C_1-C_4-alkyl, di(C_1-C_4-alkyl)-amino-C_1-C_4-alkyl, [2,2-di(C_1-C_4-alkyl)-1-hydrazino]-C_1-C_4-alkyl, C_1-C_6-alkyliminooxy-C_1-C_4-alkyl, C_1-C_4-alkoxycarbonyl-C_1-C_4-alkyl, C_1-C_4-alkylthio-C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_1-C_4-cyanoalkyl, C_3-C_8-cycloalkyl, C_1-C_4-alkoxy, C_1-C_4-alkoxy-C_2-C_4-alkoxy, C_1-C_4-haloalkoxy, C_1-C_4-alkylthio, C_1-C_4-haloalkylthio, di(C_1-C_4-alkyl)amino, COR^6, phenyl or benzyl, it being possible for the two last-mentioned substituents to be fully or partially halogenated and/or to have attached to them one to three of the following groups: nitro, cyano, C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_1-C_4-alkoxy or C_1-C_4-haloalkoxy;

or

R^4 and R^5 together form a C_2-C_6-alkanediyl chain which can be mono- to tetrasubstituted by C_1-C_4-alkyl and/or which can be interrupted by oxygen or by a nitrogen which is unsubstituted or substituted by C_1-C_4-alkyl;

or

R^4 and R^5 together with the corresponding carbon form a carbonyl or thiocarbonyl group;

R^6 is C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_1-C_4-alkoxy, C_1-C_4-alkoxy-C_2-C_4-alkoxy, C_1-C_4-haloalkoxy, C_3-C_6-alkenyloxy, C_3-C_6-alkynyloxy or NR^7R^8;

R^7 is hydrogen or C_1-C_4-alkyl;

R^8 is C_1-C_4-alkyl;

X is O, S, NR^9, CO or $CR^{10}R^{11}$;

Y is O, S, NR^{12}, CO or $CR^{13}R^{14}$;

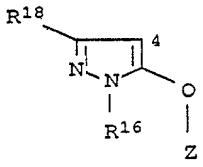
R^9, R^{12} are hydrogen or C_1-C_4-alkyl;

R^{10}, R^{11}, R^{13}, R^{14} are hydrogen, C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_1-C_4-alkoxycarbonyl, C_1-C_4-haloalkoxycarbonyl or $CONR^7R^8$;

or

R^4 and R^9 or R^4 and R^{10} or R^5 and R^{12} or R^5 and R^{13} together form a C_2-C_6-alkanediyl chain which can be mono- to tetrasubstituted by C_1-C_4-alkyl and/or interrupted by oxygen or by a nitrogen which is unsubstituted or substituted by C_1-C_4-alkyl;

R^{15} is a pyrazole of the formula II which is linked in the 4-position



II

where

R^{16} is C_1-C_6-alkyl;

Z is H or SO_2R^{17};

R^{17} is C_1-C_4-alkyl, C_1-C_4-haloalkyl, phenyl or phenyl which is partially or fully halogenated and/or has attached to it one to three of the following groups: nitro, cyano, C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_1-C_4-alkoxy or C_1-C_4-haloalkoxy;

R^{18} is hydrogen or C_1-C_6-alkyl;

where X and Y are not simultaneously oxygen or sulfur;

with the exception of
4-[2-chloro-3-(4,5-dihydroisoxazol-3-yl)-4-methylsulfonylbenzoyl]-1-ethyl-5-hydroxy-1H-pyrazole,
4-[2-chloro-3-(4,5-dihydroisoxazol-3-yl)-4-methylsulfonylbenzoyl]-1,3-dimethyl-5-hydroxy-1H-pyrazole,
4-[2-chloro-3-(5-cyano-4,5-dihydroisoxazol-3-yl)-4-methylsulfonylbenzoyl]-1,3-dimethyl-5-hydroxy-1H-pyrazole,
4-[2-chloro-3-(4,5-dihydrothiazol-2-yl)-4-methylsulfonylbenzoyl]-1,3-dimethyl-5-hydroxy-1H-pyrazole and
4-[2-chloro-3-(thiazoline-4,5-dion-2-yl)-4-methylsulfonylbenzoyl]-1,3-dimethyl-5-hydroxy-1H-pyrazole;

or an agriculturally useful salt thereof.

3. A 3-heterocyclyl-substituted benzoyl derivative of the formula I as claimed in claim 1 [or 2], where R^3 is hydrogen.

4. A 3-heterocyclyl-substituted benzoyl derivative of the formula I as claimed in claim 1 [any of claims 1 to 3], where

R^1, R^2 are nitro, halogen, cyano, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_1-C_6-alkoxy, C_1-C_6-haloalkoxy, C_1-C_6-alkylthio, C_1-C_6-haloalkylthio, C_1-C_6-alkylsulfinyl, C_1-C_6-haloalkylsulfinyl, C_1-C_6-alkylsulfonyl or C_1-C_6-haloalkylsulfonyl.

5. A 3-heterocyclyl-substituted benzoyl derivative of the formula I as claimed in claim 1 [any of claims 1 to 4], where Z is SO_2R^{17}.

6. A 3-heterocyclyl-substituted benzoyl derivative of the formula I as claimed in claim 1 [any of claims 1 to 4], where Z is hydrogen.

7. A 3-heterocyclyl-substituted benzoyl derivative of the formula I as claimed in claim 1 [any of claims 1 to 4 or 6], where X is oxygen and Y is $CR^{13}R^{14}$.

8. A 3-heterocyclyl-substituted benzoyl derivative of the formula I as claimed in claim 1 [any of claims 1 to 4 or 6 or 7], where

R^4 is halogen, nitro, C_1-C_4-alkyl, C_1-C_4-alkoxy-C_1-C_4-alkyl, C_1-C_4-alkoxycarbonyl-C_1-C_4-alkyl, C_1-C_4-alkylthio-C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_1-C_4-cyanoalkyl, C_3-C_8-cycloalkyl, C_1-C_4-alkoxy, C_1-C_4-alkoxy-C_2-C_4-alkoxy, C_1-C_4-haloalkoxy, C_1-C_4-alkylthio, C_1-C_4-haloalkylthio, di(C_1-C_4-alkyl)amino, COR^6, phenyl or benzyl, it being possible for the two last-mentioned substituents to be partially or fully halogenated and/or to have attached to them one to three of the following groups: nitro, cyano, C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_1-C_4-alkoxy or C_1-C_4-haloalkoxy;

R^5 is hydrogen or C_1-C_4-alkyl;

or

R^4 and R^5 together form a C_2-C_6-alkanediyl chain which can be mono- to tetrasubstituted by C_1-C_4-alkyl and/or which can be interrupted by oxygen or by a nitrogen which is unsubstituted or substituted by C_1-C_4-alkyl;

or

R^5 and R^{13} together form a C_2-C_6-alkanediyl chain which can be mono- to tetrasubstituted by C_1-C_4-alkyl and/or which can be interrupted by oxygen or by a nitrogen which is unsubstituted or substituted by C_1-C_4-alkyl.

9. A 3-heterocyclyl-substituted benzoyl derivative of the formula I as claimed in **claim 1** [**any of claims 1 to 4 or 6 to 8**], where

R^4 is C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_1-C_4-alkoxycarbonyl or $CONR^7R^8$;

R^5 is hydrogen or C_1-C_4-alkyl;

or

R^4 and R^5 together form a C_2-C_6-alkanediyl chain which can be mono- to tetrasubstituted by C_1-C_4-alkyl and/or which can be interrupted by oxygen or by a nitrogen which is unsubstituted or substituted by C_1-C_4-alkyl;

or

R^5 and R^{13} together form a C_2-C_6-alkanediyl chain which can be mono- to tetrasubstituted by C_1-C_4-alkyl and/or which can be interrupted by oxygen or by a nitrogen which is unsubstituted or substituted by C_1-C_4-alkyl.

10. A 3-heterocyclyl-substituted benzoyl derivative of the formula I as claimed in claim 1 [any of claims 1 to 4 or 6 or 7], where R^4 and R^5 are hydrogen.

11. A 3-heterocyclyl-substituted benzoyl derivative of the formula I as claimed in claim 1 [any of claims 1 to 4 or 6 or 7 or 10], where R^{18} is hydrogen.

12. 4-[2-Chloro-3-(4,5-dihydroisoxazol-3-yl)-4-methylsulfonyl-benzoyl]-1-methyl-5-hydroxy-1H-pyrazole.

13. An agriculturally useful salt of 4-[2-chloro-3-(4,5-dihydroisoxazol-3-yl)-4-methylsulfonylbenzoyl]-1-methyl-5-hydroxy-1H-pyrazole.

14. A 3-heterocyclyl-substituted benzoyl derivative of the formula I as claimed in claim 1 [any of claims 1 to 4 or 6], where

X is S, NR^9, CO or $CR^{10}R^{11}$;

or

Y is O, S, NR^{12} or CO.

15. A 3-heterocyclyl-substituted benzoyl derivative of the formula I as claimed in claim 1 [any of claims 1 to 4 or 6 or 14], where R^{18} is hydrogen.

16. A 3-heterocyclyl-substituted benzoyl derivative of the formula I as claimed in claim 1 [any of claims 1 to 4 or 6 or 14], where

R^4 is halogen, cyano, nitro, C_1-C_4-alkyl, C_1-C_4-alkoxy-C_1-C_4-alkyl, C_1-C_4-alkoxycarbonyl-C_1-C_4-alkyl, C_1-C_4-alkylthio-C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_1-C_4-cyanoalkyl, C_3-C_8-cycloalkyl, C_1-C_4-alkoxy, C_1-C_4-alkoxy-C_2-C_4-alkoxy, C_1-C_4-haloalkoxy, C_1-C_4-alkylthio, C_1-C_4-haloalkylthio, di(C_1-C_4-alkyl)amino, COR^6, phenyl or benzyl, it being possible for the two last-mentioned substituents to be partially or fully halogenated and/or to have attached to them one to three of the following groups: nitro, cyano, C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_1-C_4-alkoxy or C_1-C_4-haloalkoxy;

R^5 is hydrogen or C_1-C_4-alkyl;

or

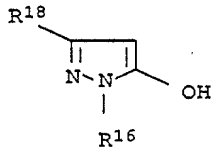
R^4 and R^5 together form a C_2-C_6-alkanediyl chain which can be mono- to tetrasubstituted by C_1-C_4-alkyl and/or which can be interrupted by oxygen or by a nitrogen which is unsubstituted or substituted by C_1-C_4-alkyl;

or

R^4 and R^9 or R^4 and R^{10} or R^5 and R^{12} or R^5 and R^{13} together form a C_2-C_6-alkanediyl chain which can be mono- to tetrasubstituted by C_1-C_4-alkyl and/or which can be interrupted by oxygen or by a nitrogen which is unsubstituted or substituted by C_1-C_4-alkyl;

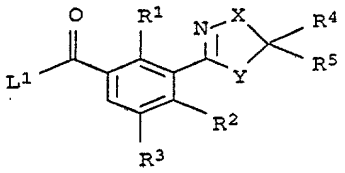
R^{18} is C_1-C_6-alkyl.

17. A process for the preparation of 3-heterocyclyl-substituted benzoyl derivatives of the formula I as claimed in claim 1, which comprises acylating the pyrazole of the formula II where Z = H, where the variables R^{16} and R^{18} have the meanings given under claim 1,

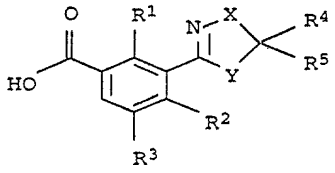


II (where Z = H)

with an activated carboxylic acid IIIα or with a carboxylic acid IIIβ,



IIIα



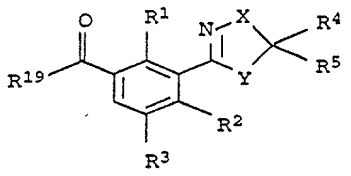
IIIβ

where the variables R^1 to R^5, X and Y have the meanings given under claim 1 and L^1 is a nucleophilically displaceable leaving group, subjecting the acylation product to a rearrangement reaction in the presence or absence of a catalyst to give the compounds I (where Z = H) and, if desired, to prepare 3-heterocyclyl-substituted benzoyl derivatives of the formula I where $Z = SO_2R^{17}$, reacting the product with a compound of the formula V,

$$L^2 — SO_2R^{17} \qquad V$$

where R^{17} has the meaning given under claim 1 and L^2 is a nucleophilically displaceable leaving group.

18. A 3-heterocyclyl-substituted benzoic acid derivative of the formula III,



III

where R^{19} is hydroxyl or a radical which can be removed by hydrolysis and variables R^1 to R^5, X and Y have the meanings given under [the claims 1 to 16] claim 1, with the exception of methyl 2-chloro-3-(4,5-dihydroisoxazol-3-yl)-4-methylsulfonylbenzoate, methyl 2-chloro-3-(4,5-dihydrooxazol-2-yl)-4-methylsulfonylbenzoate and methyl 2,4-dichloro-3-(5-methylcarbonyloxy-4,5-dihydroisoxazol-3-yl)benzoate.

19. A 3-heterocyclyl-substituted benzoic acid derivative of the formula III [as claimed in claim 18] where the variables R^1 to R^5, X and Y have the meanings given under claim 2 [claims 2 to 16].

20. A 3-heterocyclyl-substituted benzoic acid derivative of the formula III as claimed in claim 18 [either of claims 18 or 19], where

R^{19} is halogen, hydroxyl or C_1-C_6-alkoxy.

21. A composition comprising a herbicidally active amount of at least one 3-heterocyclyl-substituted benzoyl derivative of the formula I or of an agriculturally useful salt of I as claimed in claim 1 [any of claims 1 to 16], and auxiliaries conventionally used for the formulation of crop protection products.

22. A process for the preparation of a composition as claimed in claim 21, which comprises mixing a herbicidally active amount of at least one 3-heterocyclyl-substituted benzoyl derivative of the formula I or of an agriculturally useful salt of I [as claimed in any of claims 1 to 16] and auxiliaries conventionally used for the formulation of crop protection products.

23. A method of controlling undesirable vegetation, which comprises allowing a herbicidally active amount of at least one 3-heterocyclyl-substituted benzoyl derivative of the

formula I or of an agriculturally useful salt of I as claimed in claim 1 [any of claims 1 to 16] to act on plants, their environment and/or on seeds.